

REMARKS/ARGUMENTS

Amendments were made to the specification to correct errors and to clarify the specification. No new matter has been added by any of the amendments to the specification.

Claims 1-35 are pending in the present application. Claims 9 and 10 have been amended herewith. Reconsideration of the claims is respectfully requested.

I. Specification

The Abstract was objected to due to the title appearing above the Abstract. Applicants have amended the Specification herewith to remove the title from the Abstract page.

Thus, the objection to the Abstract has been overcome.

II. 35 U.S.C. § 102, Anticipation

Claims 1-35 stand rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.* (*Autonomous Robots Sharing a Charging Station with no Communication: a Case Study*, 2002). This rejection is respectfully traversed.

Generally speaking, the present invention recited in Claim 1 is directed to a *multi-lateral negotiation technique* for a robotic device(s) to access a charging station. In contrast, per the teachings of the cited reference, a unilateral technique for robotic access to a charging station is provided, with no need for any type of negotiation. Importantly, the cited reference expressly teaches away from any type of negotiation technique, instead choosing a technique that explicitly does not require or utilize any type of robotic communication or associated negotiation (see, e.g., the title of the cited reference:

Autonomous Robots Sharing a Charging Station with no Communication: a Case Study (emphasis added by Applicants)). For a prior art reference to anticipate in terms of 35 U.S.C. 102, *every element* of the claimed invention must be *identically shown* in a single reference. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Applicants will now show that every element recited in each of Claims 1-35 is not identically shown in a single reference, as thus these Claims 1-35 have been erroneously rejected under 35 U.S.C. § 102(a) as being anticipated by Sempé *et al.*

With respect to Claim 1, such claim recites “a first communications device associated with said nesting station and a plurality of second communication devices associated with respective ones of said plurality of self-mobile devices, whereby said nesting station can have two-way communications with said plurality of self-mobile devices”. As can be seen, Claim 1 recites a first communication device

associated with a nesting station and a plurality of second communication devices associated with respective ones of the plurality of self-mobile devices, such that the nesting station can have two-way communication with the self-mobile devices. In contrast, per the teachings of the cited reference, *no communication is provided at all* (see, e.g., Sempé *et al.* Title on page 1; page 2, 1st paragraph; page 11, 1st paragraph; et seq.). Instead, each robot operates completely autonomously (see, e.g., Abstract on page 1 of the cited reference). This autonomous operation is also depicted in Figure 1 on page 5 of the cited reference. Thus, as every element recited in Claim 1 is not identically shown in a single reference – and in particular the claimed communication devices - Claim 1 has been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Further with respect to Claim 1, such claim recites “a first protocol for negotiating and utilizing respective charging times for said plurality of self-mobile devices, *said protocol being negotiated by said nesting station and each of said plurality of self-mobile devices*”. As can be seen, a protocol is negotiated by the nesting station and each of the self-mobile devices. Because there is no ability to communicate per the teachings of the cited reference, it similarly follows there is no ability to negotiate a protocol by a nesting station and each of the self-mobile devices. Thus, as there are additional elements recited in Claim 1 that are not identically shown in a single reference, Claim 1 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Applicants initially traverse the rejection of Claims 2-10 for reasons given above with respect to Claim 1 (of which Claims 2-10 depend upon).

Further with respect to Claim 2 (and dependent Claim 3), it is urged that the cited reference does not teach the claimed feature of “a second protocol for automatically providing new instructions or updates to basic programming to ones of said plurality of self-mobile devices”. There is no mention of any ability to automatically providing new instructions or updates to basic programming to ones of said plurality of self-mobile devices. Thus, it is further urged that Claim 2 (and dependent Claim 3) has been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.* as there are additional claimed features not taught by the cited reference.

Further with respect to Claim 4, it is urged that the cited reference does not teach the claimed feature of “establishing a communications link between said nesting station and one of said plurality of self-mobile devices that needs charging” for similar reasons to those given above with respect to Claim 1 regarding the missing communication features. Thus, it is further urged that Claim 4 has been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.* as there are additional claimed features not taught by the cited reference.

With respect to Claims 5-10, it is urged that the cited reference does not describe any type of details pertaining to connectors, and therefore the connector details defined in Claims 5-10 are not described by the teachings of the cited reference. Instead, the cited reference merely states:

“The charging station has been designed to accept an approximate connection between it and the robots.”

Thus, as the particular connector features recited in Claims 5-10 are not identically shown in this cited reference, it is further urged that Claims 5-10 have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Applicants traverse the rejection of Claims 11-18 for similar reasons to those given above with respect to Claim 1.

Applicants further traverse the rejection of Claim 12 for similar reasons to the further reasons given above with respect to Claim 2.

Applicants further traverse the rejection of Claims 13-18 for similar reasons to the further reasons given above with respect to Claims 5-10.

With respect to Claim 19, it is urged that the cited reference does not teach the claimed feature of “a communications device attached to said body and connected to said processor to provide two-way communications with a charging station ...wherein said processor is connected to negotiate with a charging station, using a given protocol, to schedule a time slot for charging of said battery” for similar reasons to those given above with respect to Claim 1.

Applicants initially traverse the rejection of Claim 20 for reasons given above with respect to Claim 19 (of which Claim 20 depends upon). Still further, Claim 20 recites “establishing a communications link with a charging station”, “requesting a time slot for charging”, “receiving a suggested time slot for charging”, and “verifying that said suggested time slot is acceptable and storing said suggested time slot in memory”. The cited reference does not teach these claimed steps as the cited reference is instead directed to a self-sufficient, autonomous robot operation. For example, due to such autonomous operation, there is no need for any type of communication link establishment, or the receiving of a suggested time slot, or the storing of such suggested time slot. Thus, as there are additional elements recited in Claim 20 that are not identically shown in a single reference, Claim 20 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

With respect to Claim 21, such claim recites “querying a robotic device whether it has reached a given level of depletion” and “if the robotic device has reached said given level of depletion, negotiating with said robotic device using a protocol to determine a time slot for charging said robotic device”. The

cited reference does not teach these claimed steps as the cited reference is instead directed to a self-sufficient, autonomous robot operation. Thus, as there are elements recited in Claim 21 that are not identically shown in a single reference, Claim 21 is shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Applicants initially traverse the rejection of Claims 22-25 for reasons given above with respect to Claim 21 (of which Claims 22-25 depend upon).

Further with respect to Claim 22, Applicants further traverse the rejection of such claim for similar reasons to the further reasons given above with respect to Claim 2.

Further with respect to Claim 23, such claim recites “offering a next available time slot at which said robotic device can report to said charging station for charging” and “if said robotic device provides a confirmation of said time slot, scheduling said robotic device for said time slot, else incrementing said available time slot and returning to said offering step”. The cited reference does not teach any type of next available time slot *offer*, or any type of time slot *confirmation*. The cited reference is instead directed to a self-sufficient, autonomous robot operation. Thus, as there are additional elements recited in Claim 23 that are not identically shown in a single reference, Claim 23 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Further with respect to Claim 24, such claim recites “wherein said charging station maintains separate schedules for each of a plurality of connectors”. The cited reference does not teach any type of schedule maintenance by the charging station itself – instead, the cited reference teaches a self-sufficient, autonomous robot operation with no scheduling assistance provided by the charging station. Thus, as there are additional elements recited in Claim 24 that are not identically shown in a single reference, Claim 24 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Further with respect to Claim 25, such claim recites “said protocol includes determining a connector of said plurality of connectors that said robotic device can utilize for charging”. For similar reasons to those described above with respect to Claim 1, the cited reference does not teach any type of protocol and therefore it cannot teach particular features recited in Claim 25 that pertain to such missing protocol. Thus, as there are additional elements recited in Claim 25 that are not identically shown in a single reference, Claim 25 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

With respect to Claim 26, such claim recites “receiving and storing a time slot for charging”, and “reporting for charging during said time slot”. The cited reference does not teach any type of charging time slot. Instead, a ‘go-and recharge’ method is described which is solely invoked by the robot itself based on a battery-level threshold, which is energy level-based (Sempé *et al.*, page 4, lines 1-6), and

therefore is not based on a received and stored charging time-slot. Thus, as there are elements recited in Claim 26 that are not identically shown in a single reference, Claim 26 is shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Applicants initially traverse the rejection of Claims 27 and 28 for reasons given above with respect to Claim 26 (of which Claims 27 and 28 depend upon).

Further with respect to Claim 27, Applicants further traverse the rejection of such claim for similar reasons to the further reasons given above with respect to Claim 2.

Further with respect to Claim 28, such claim recites “notifying said charging station of a need for a specific connector needed for charging”. The cited reference does not provide any type of charging station *notification*, either of a need for a specific connector needed for charging (as claimed), or any other type of charger station notification. Thus, as there are additional elements recited in Claim 28 that are not identically shown in a single reference, Claim 28 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

With respect to Claim 29 (and dependent Claims 30 and 31), such claim recites “establishing a communications link between said robotic device and a charging station” and “using a protocol to determine a connector or correct current needed for charging said robotic device”. Applicants traverse the rejection of Claim 29 (and dependent Claims 30 and 31) for similar reasons to those given above with respect to Claim 1.

Applicants traverse the rejection of Claim 32 (and dependent Claims 33-35) for similar reasons to those given above with respect to Claim 29.

Further with respect to Claim 33, Applicants further traverse the rejection of such claim for similar reasons to the further reasons given above with respect to Claim 2.

Further with respect to Claim 34, such claim recites “sixth instruction in said nesting station, for providing, in response to a request, a first available time at which said robotic device can report to said nesting station for charging” and “seventh instruction in said robotic device for providing either a confirmation of said time slot or a request for a different time slot”. The cited reference does not teach (i) any type of providing, in response to a request, a first available time slot, or (ii) any type of time slot confirmation or request for a different time slot. The cited reference is instead directed to a self-sufficient, autonomous robot operation that has no need for such handshake operations between a nesting station and a robotic device. Thus, as there are additional elements recited in Claim 34 that are not identically shown in a single reference, Claim 34 is further shown to have been erroneously rejected under 35 U.S.C. § 102 as being anticipated by Sempé *et al.*

Further with respect to Claim 35, Applicants further traverse the rejection of such claim for similar reasons to the further reasons given above with respect to Claim 24.

Therefore, the rejection of Claims 1-35 under 35 U.S.C. § 102(a) has been overcome.

III. Conclusion

It is respectfully urged that the subject application is patentable over the cited reference and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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